FT-CJ2730

GelGreen™ Nucleic Acid Gel Stain

Simply the best nucleic acid gel stain.

Product Information

Product name cat.number	Packaging interest
GelGreen™ Nucleic Acid Gel Stain 10 000X in DMSO BY1750, 500 µl	
GelGreen™ Nucleic Acid Gel Stain 10 000X in water CJ2730, 500 µl CJ2731, 10 ml	- better safety

Storage: Room temperature. Protect from light and moisture
The shelf life of the material is at least one year at room temperature or 4°C.
Although not necessary, GelGreen may also be stored at a lower temperature. Exposure to light should be avoided during long-term storage. However, the dye can be handled under ambient light without any problem during staining experiment.

Introduction

GelGreen™ is a green fluorescent nucleic acid dye specifically designed for gel staining purpose. The dye's sensitivity in gel staining is similar to that of SYBR Green I. However, unlike SYBR Green I, wich is unstable, GelGreen® is very stable, both hydrolytically and thermally. Moreover, our preliminary data indicates that GelGreen™ is not only substantially less mutagenic than EB but also less cytotoxic than SYBR Green I. Like SYBR Green I, the dye has sufficient UV absorption between 250 nm and 300 nm and a strong absorption peak centered around 500 nm (Figure 1). Thus, GelGreen™ is compatible with either a 254 nm UV transilluminator or a gel reader equipped with visible light excitation (such as a 488 nm laser-based gel scanner or a Dark Reader).

GelGreen™ can be used for either post gel staining or precast gel staining. In general, post gel staining gives better sensitivity than precast gel staining, and eliminates any possibility for the dye to interfere with the migration and thus the separation of the nucleic acid bands. On the other hand, precast gel staining is both simpler and more economical than post gel staining because it does not need an extra staining step and uses less dye. Although GelGreen™ typically has minimal effect on DNA migration, we and some of our customers have observed that, in some rare cases, some DNA samples derived from plasmid DNA digestion by certain restriction enzymes may experience significant migration retardation or compromised resolution. Thus, we highly recommend that you try both precast and post gel staining procedures to determine which one may better meet your needs.

GelGreen™ may be used to stain either dsDNA or ssDNA or RNA in agarose gels. However, GelGreen™ is not recommended for staining DNA or RNA in polyacrylamide gels due to the dye's slow diffusion rate in the relatively tight polyacrylamide gel matrix.

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GelGreen™ Nucleic Acid Gel Stain, 10,000X in DMSO is a concentrated GelGreen™ solution that can be diluted **10,000** times for use in precast gel staining or ~**3,300** times for use in post gel staining according to the procedures described below. The GelGreen™ post staining solution may be used 2-3 times.

Note: GelGreen® is not designed for qPCR application, for which we recommend EvaGreen (# BI1790).

Directions for use

Handling and Storage

GelGreen® Nucleic Acid Gel Stain, 10 000X is a concentrated GelGreen® solution that can be diluted 10,000 times for use in precast gel staining or ~3,300 times for use in post gel staining according to the procedures described below.

Protocol 1- Staining DNA by Post Gel Staining

1.1 Run gels as usual according to your standard protocol.

1.2 Dilute the GelGreen™ 10,000X stock reagent ~3,300 fold to make a 3X staining solution in H_2O with 0.1 M NaCl (e.g., add 15 µL of GelGreen 10,000X stock reagent and 5 mL 1M NaCl to 45 mL H_2O). While GelGreen™ 1X staining solution can also be used for post gel staining, the sensitivity is generally less than with 3X staining solution

Note: use of NaCl in the staining solution is optional. Including NaCl in the staining solution enhances the staining, but may promote dye precipitation if the staining solution is to be used repeatedly. Any staining solution to be reused is preferably stored at room temperature in a dark place to reduce possible dye precipitation problem.

1.3 Carefully place the gel in a suitable container such as a polypropylene container. Gently add a sufficient amount of the 3X staining solution to submerge the gel.

1.4 Agitate the gel gently at room temperature for ~30 minutes. Optimal staining time may vary somewhat depending on the thickness of the gel and the percentage of agarose or polyacrylamide used. The staining solution can be reused at least 2-3 times. The unused staining solution can be stored at room temperature in a dark place.

1.5 View the stained gel with a 254 nm transilluminator, a Dark Reader or a similar transilluminator, or a laser-based gel scanner, and photograph the gel using any suitable imaging equipment. A long path green filter such as a SYBR filter or GelStar filter should be used for the photographing (See figure 1 for GelGreen® excitation and emission spectra).

Protocol 2- Staining DNA by Precasting GelGreen® Gels

2.1 Prepare agarose gel solution using your standard protocol.

2.2 Dilute the GelGreen® 10,000X stock reagent into the agarose gel solution at 1:10,000 (e.g., 5 µL of the GelGreen® 10,000X stock reagent added to 50 mL of the gel solution). Since GelGreen® is generally thermally stable, the 10,000X stock reagent can be added while the gel solution is still hot. Make sure that the dye is thoroughly mixed with the gel solution by swirling, stirring, or inversion.

Alternatively, the GelGreen® stock reagent may be pre-combined with agarose powder and a buffer of your choice followed by microwaving or other heating procedures commonly used for preparing agarose gels. GelGreen® is compatible with all commonly used electrophoresis buffers.

2.3 Cast the gels and allow it to solidify. Any left over gel solution may be stored and re-heated later for additional gel casting. Since GelGreen® is hydrolytically stable (See Figure 2), GelGreen® precast gels may be prepared in large quantities and stored for later use. To avoid mold formation, we recommend that the precast gels be stored in a refrigerator at 4°C.

2.4 Load samples and run the gels using your standard protocol.

2.5 View the stained gel using a standard 254 nm transilluminator (i.e. BluPAD) and photograph the gel using Polaroid 667 films and an ethidium bromide filter. Since the fluorescence is in the red wavelength region, a SYBR£ or GelStar£ filter can also be used for photographing with equally good results (See figure 1 for GelGreen® excitation and emission spectra).

If you consistently see band smearing and/or poor band separation, run a post gel staining by following the protocol provided below to confirm if the problem is caused by the dye or other factors unrelated to the dye. If post gel staining is normal, try running a longer gel or select post gel staining as your protocol. If the problem was not caused by the dye, try any of the followings: lowering the amount of agarose in the gel; lowering the amount of nucleic acid loaded; increase the thickness of your gel; improving your sample loading technique.. You may also try our GelRed, which givesless DNA migration problem

Note: GelGreen is not recommended for polyacrylamide gels.
Use post gel staining for acrylamide gels.

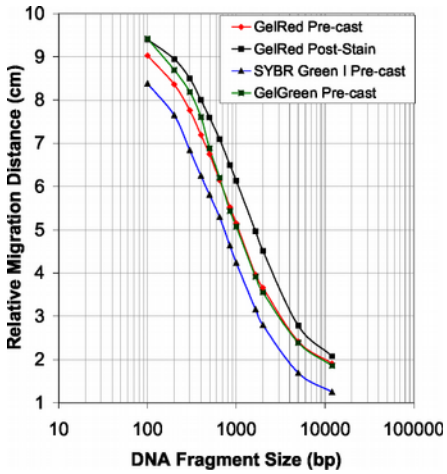

Figure 2. Plot of relative migration distance of dsDNA in various 1% agarose precast gels vs DNA size. Precast gels containing each of the 3 dyes, GelRed, GelGreen and competitor, each at 1x concentration were compared. The curve representing DNA migration distance in the gel post-stained with GelRed vs DNA size was used as a reference. The data shows that GelRed and GelGreen have less effect on DNA migration than competitor does.

TOXICITY: Ames test performed by an independent lab, Litron Laboratories (Rochester, NY), showed that GelGreen is nonmutagenic and noncytotoxic. GelGreen appears to be completely cell membrane-impermeable, which may be a key factor responsible for the observed low toxicity. However, since these tests were not performed on human, we still advise that researchers exercise precautions when handling the dye or any other DNA-binding molecules by wearing protective gears. For more information on the Ames test result, please contact us or dowlowd the complete report NT-BQ041T.

DISPOSAL : Whether GelGreen waste solution can be directly poured into the drain may depend on local regulations despite its nonmutagenicity and noncytotoxicity. Alternatively, GelGreen solution may be disposed of using one of the following methods: 1) Add 25~50 mL bleach (regular household bleach) to each gallon (~4L) of the waste staining solution and let the mixture react for at least 8 hours before pouring the solution to a sink (Practically, you may simply accumulate your GelGreen waste solution in a jar containing appropriate amount of bleach); 2) Pour each 10 liters of GelGreen waste solution through ~1g of activated charcoal (available from any of the major chemical suppliers). The filtrate may directly go to the drain while the charcoal may be treated as regular solid waste. Precast gels may be let dry out and then treated as regular solid waste.

FIRST AID: Potentially harmful. Avoid prolonged or repeated exposure. Avoid getting in eyes, on skin, or on clothing. Wash thoroughly after handling. If eye or skin contact occurs, wash affected areas with plenty of water for 15 minutes and seek medical advice. In case of inhaling or swallowing, move individual to fresh air and seek medical advice

Related products

FT-CJ2730

- BluPAD Transilluminator, BLUPAD
- GelRed™ Nucleic Acid Stain, BY1740
- Fast EvaGreen™ master mix for qPCR and HRM, DV7220
- Agarose regular uses, 31272L
- MagicBlue DNA quantification, EV4100
- UptiTherm™ DNA Polymerase, UPS53921
- One-Step RT-PCR PreMix Kit (cDNA synthesis and PCR), CD9800

Ordering information

Catalog size quantities and prices may be found at http://www.interchim.com
Please inquire for higher quantities (availability, shipment conditions).

For any information, please ask : FluoProbes® / Interchim; Hotline : +33(0)4 70 03 73 06

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